

REMARKS

Status of the Application

In the Office Action, claims 1-31 were rejected. In the present amendment, claims 9 and 10 have been amended and claims 32-34 have been added so that claims 1-34 are pending. No new matter has been added.

Support for the amendments to claims 9 and 10 can be found at page 5, lines 20-25 and page 9, lines 30-32.

Support for newly added claims 32-34 can be found at page 8, lines 4-8 and page 9, lines 12-25.

Rejections Under 35 U.S.C. § 112, first paragraph

Claims 9-14 were rejected under 35 U.S.C. § 112, first paragraph "because the specification, while being enabling for obtaining PO3G having a molecular weight of about 250-2250 with an APHA color less than about 50 by contacting PO3G with about 1.0 to 5.0 wt.% activated carbon, does not reasonably provide enablement for obtaining PO3G having a molecular weight of about 2251-5000 with an APHA color less than about 50 by contacting PO3G with 0.1 to about 0.5 wt.% activated carbon." The Examiner asserts that the "specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims." The Examiner further asserts that "[i]n examples 6-11 of the instant specification a color APHA of less than 50 is not obtained when 0.25 wt.% of activated carbon is contacted with a PO3G having a molecular weight of 2449", and that in examples 13-17 "a color APHA of less 50 is not obtained until 1.0 wt.% of activated carbon is contacted with a PO3G having a molecular weight of 2212." The Examiner concludes that "based on the data obtained in Applicant's examples in order to practice the instantly claimed invention the PO3G has to have a molecular weight of less than about 2250 and use between 1.0 and 5.0 wt.% activated carbon."

Applicants, however, respectfully assert that in light of the amendment to claim 9 this rejection has been rendered moot. Accordingly, Applicants respectfully request that the Examiner withdraw this rejection.

Rejection Under 35 U.S.C. §102

Claims 1-7, 15, 16, 19-22 and 24-28 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 2,520,733 to Morris. Specifically, the Examiner asserts that column 2, line 30 to column 3, line 34 of Morris "teach[es] preparing polymers of trimethylene glycol by heating glycols in the presence of dehydration catalysts". The Examiner further asserts that column 6, line 39 to column 7, line 69 indicates that the product of Morris "is purified to remove color bodies by percolation with fuller's earth followed by hydrogenation", and that Morris indicates at column 7, lines 55-64 that the "hydrogenation step is carried out at temperature ranging from about 50°C to about 275°C". The Examiner further asserts that Morris indicates at column 10, lines 5-11 that the "polymers to be purified have molecular weights ranging from about 100 to about 10,000, preferably between about 200 and 1500", and that column 15 indicates that "the limitations of claims 15-18 are taught in Examples X-XII". Finally, the Examiner asserts that "the trimethylene glycol polymer produced in Example XII has a molecular weight of 475."

Applicants, however, respectfully disagree with the Examiner as Morris fails to disclose a PO3G having an APHA color less than 50. In fact, as Applicants pointed out at page 4, line 18 to page 5, line 2 of the specification, the process of Morris is only able to reduce the color bodies of a PO3G to an 8 Gardner color, which Applicants further explained corresponds to an APHA color greater than 300. A PO3G having an APHA color greater than 300, however, is "totally inadequate for current requirements." (See page 5, lines 1-2 of the specification).

For the Examiner's convenience, Applicants have attached a chart comparing various color scales, including the APHA and Gardner color scales. The attached color scale comparison chart enables a color number on the Gardner Scale to be converted to an approximate color number on the APHA scale. Applicants have highlighted the specific columns pertaining to the Gardner and APHA scales. Applicants point out that a Gardner color number of 8 actually corresponds to an APHA color number that is off the APHA color scale. That is, the APHA scale only goes up to an APHA color of 300, and a Gardiner color of 8 corresponds to an APHA color that is somewhere well above 300.

Although the Examiner asserts hereinbelow that a PO3G having an APHA color less than 50 is inherent in the PO3Gs of Morris, Applicants respectfully assert that Morris expressly indicates in Examples X and XI that a PO3G having a color value less than 300 APHA cannot be produced in accordance with his process. Instead, Morris indicates in Example X that a PO3G treated with fuller's earth will have a Gardner color of 12, and in Example XI that a PO3G subjected to hydrogenation will have a Gardner color of 8. As the Examiner will note upon referencing the color comparison chart being submitted herewith, however, Gardiner colors of 8 and 12 are well above 300 APHA, and indeed nowhere near 50 APHA.

Moreover, Morris expressly indicates that activated carbons, activated aluminas, silica gels, and extraction with steam or toluene all fail to improve the color of PO3G. Specifically, Applicants direct the Examiner's attention to column 6, lines 67-75 and column 7, lines 1-11 of Morris, wherein Morris indicates that "[o]ther ordinary bleaching procedures heretofore utilized such as treatments with various activated carbons, activated aluminas, silica gels, or extraction with steam or toluene, also fail to improve the color of the trimethylene glycol polymers."

As a result, Applicants respectfully assert that the Examiner has failed to provide rationale or evidence that tends to show an APHA color less than 50 is inherent in the PO3Gs of Morris. Indeed, Section 2112, paragraph IV of the MPEP indicates that the Examiner must provide rationale or evidence tending to show inherency. Specifically, Section 2112, paragraph IV indicates that

"[t]o establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'"

Section 2112, paragraph IV further indicates that "the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art."

The Examiner, however, has failed to provide the necessary fact or technical reasoning to reasonably support the assertion that PO3Gs prepared in accordance

with the process of Morris will necessarily have an APHA color of less than 50. Instead, the Examiner reasons that because Example XI indicates a PO3G having a Gardiner color of 8 (which is largely greater than an APHA color of 300) can be produced via hydrogenation, and “column 7, lines 37-45 Morris et al. teach that the combination of percolation with fuller’s earth followed by hydrogenation is better at removing color bodies than either of these two methods alone”, Morris inherently discloses that PO3Gs having an APHA color of less than 50 can be produced by subjecting a PO3G containing color bodies to the hydrogenation and percolation processes in combination.

The Examiner, however, is attempting to establish inherency via mere probabilities or possibilities, and has failed to establish via fact or technical reasoning that a PO3G having an APHA color of less than 50 can necessarily be attained with the fuller’s earth or hydrogenation methods of Morris either alone or in combination. That is, Morris fails to clearly indicate that a PO3G having a color less than 50 APHA is necessarily produced when the hydrogenation and fuller’s earth methods are combined. As the allegedly inherent APHA color of less than 50 does not necessarily flow from the disclosure of Morris, Applicants respectfully assert that the Examiner has failed to establish that the APHA color of less than about 50 limitation is inherently present in Morris.

As a result, Applicants respectfully assert that Morris does not anticipate their claimed invention because Morris fails to either expressly or inherently disclose all of the limitations of their claimed invention. More specifically, Morris fails to either expressly or inherently disclose the APHA color of less than about 50 limitation. In fact, not only does Morris fail to disclose a process for obtaining a PO3G having an APHA color of less than about 50, but Morris expressly indicates that the methods of his invention are only capable of obtaining PO3Gs having an APHA color well above 300—and certainly nowhere close to 50. Accordingly, Applicants respectfully request that the Examiner withdraw this rejection.

Rejections Under 35 U.S.C. § 103(a)

Claims 1-31 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 2,520,733 to Morris alone or in view of U.S. Patent No. 2,315,584 to Borglin.

Specifically, the Examiner reasserts the same arguments as already set forth hereinabove. In addition, the Examiner asserts that although Morris “fail to expressly disclose that the APHA color is less than about 50”, “Morris et al. inherently teach this limitation” because “the claimed steps for removing the color bodies are fully taught by Morris et al.”. The Examiner further asserts that one skilled in the art would expect it to be less than 8 Gardner color, since this is the result obtained by using hydrogenation alone and in column 7, lines 37-45 Morris et al. teach that the combination of percolation with fuller’s earth followed by hydrogenation is better at removing color bodies than either of these two methods alone.”

The Examiner, however, asserts that “Morris et al. teach using fuller’s earth instead of activated carbon”, and turns to Borglin. Borglin, the Examiner asserts, “teach that activated carbon and fuller’s earth as interchangeable for use in removing color bodies.” The Examiner asserts that one “having ordinary skill in the art at the time the invention was made would have found it obvious to substitute activated carbon, as taught by Borglin, for the fuller’s earth in the process of Morris, since Borglin teaches that they are equivalents agents for removing color bodies.”

The Examiner further asserts that although “Morris et al. do not teach the amount of the adsorbent to utilize or the amount of time the contact should be conducted”, “[o]ne having ordinary skill in the art at the time the invention was made would have found it obvious to vary the amount of activated carbon utilized and the contact time need for removal of the color bodies depending upon the application of the product PO3G (see column 7, lines 31-45).”

Finally, the Examiner asserts that although “Morris et al. do not disclose the percent color reduction of the combination of percolation and hydrogenation than for the two methods singly (see Examples XI and XII)”, and “[t]hus the limitations of claims 19-21 are met are at least suggested.”

Applicants, however, respectfully assert that as all of the claim limitations of their claimed invention have not been taught or suggested by Morris and/or Borglin either alone or in combination, the Examiner has failed to establish a *prima facie* case of obvious. As already pointed out in the arguments fully set forth hereinabove, Morris fails to either expressly or inherently disclose the APHA color of less than about 50 limitation. As a result, Morris neither alone, nor in combination with Borglin

either expressly, or inherently discloses all of the limitations of Applicants' claimed invention.

Applicants further assert that the Examiner has failed to establish a *prima facie* case of obviousness because there is no motivation to combine Borglin with Morris. Indeed, as Morris indicates that fuller's earth is only capable of obtaining an APHA color well above 300, there would have been no motivation to combine Borglin with Morris. In fact, based on the Examiner's asserted teachings of Borglin, a person of ordinary skill in the art would have been led away from—and not toward—Applicants' claimed invention because Morris (as already indicated hereinabove) not only expressly indicates that activated carbon does not work, but indicates that fuller's earth can only obtain a color well above an APHA color of 300—and nowhere near an APHA color of 50. That having been said, Applicants fail to see a single disclosure in Borglin that states activated carbon and fuller's earth are interchangeable for use in removing color bodies. Instead, Borglin simply provides a list of "suitable solid absorbents", wherein activated carbon and fuller's earth are simply but two of the eight expressly listed examples.

Finally, Applicants respectfully assert that the Examiner has failed to establish a *prima facie* case of obviousness because a person of ordinary skill in the art would have no reasonable expectation of successfully producing a PO3G having an APHA color of less than about 50 by combining Borglin with Morris. In fact, based on the disclosure of Morris as already indicated hereinabove, a person of ordinary skill in the art would actually expect that using the absorbents listed in Borglin would fail to produce a PO3G having an APHA color less than about 50.

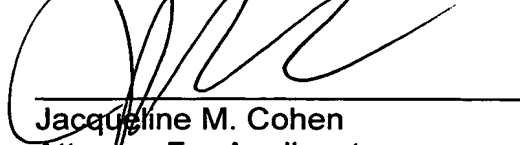
For all of the reasons set forth above, Applicants respectfully assert that the Examiner has failed to establish a *prima facie* case of obviousness. Accordingly, Applicants respectfully request that the Examiner withdraw this rejection.

SUMMARY

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance. In order to expedite disposition of this case, the Examiner is invited to contact Applicants' representative at the telephone number below to resolve any remaining issues. Should there be a

fee due that is unaccounted for, please charge such fee to Deposit Account No. 04-1928 (E.I. du Pont de Nemours and Company).

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'J. Cohen', is written over a horizontal line.

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DATED: August 4, 2004



COLOR SCALE COMPARISON

How To Use The Chart

To convert or to compare a given value on the chart, lay a straight-edge horizontally across the chart so that it intersects the given scale at right angles at the given point. The lettered reference scales bordering the chart will assist in aligning the straight-edge.

With the straight-edge in position, approximate

comparative values on other scales can be read at the points of intersection.

The numbers on the color scales are not linearly proportional to the degree of darkness or lightness of the product. That is, a Saybolt color of 8 is not twice as dark as one of 16, nor is an ASTM color of 4 twice as dark as one of 2.

Color Scale Comparisons For Approximate Conversions											
REFERENCE	NPA ⁽¹⁾ COMMON DESCRIPTIVE TERM	SAYBOLT CHROMOMETER (ASTM D 155)	TAG-ROBINSON COLORIMETER	ASTM ⁽²⁾ SCALE (ASTM D 1540)	UNION (NPA) ⁽³⁾ COLORIMETER (ASTM D 1540)	PLATINUM-COBALT (APHA) ⁽³⁾ SYSTEM (ASTM D 1540)	GARDNER-STANDARD 1533 (ASTM D 1540)	HELLIGE COLOR COMPARATOR	LOWBOND TINTOMETER (12-17) LOWBOND UNITS, 67 CELL	POTASSIUM DICHROMATE STANDARD, GRAM/LITER (1% H ₂ SO ₄)	REFERENCE
A		+30			0						A
B	WATER WHITE	+25								0.0020	B
C	PRIME WHITE	+20								0.0065	C
D		+15								0.0125	D
E		+10								0.0185	E
F		+5								0.0195	F
G	STANDARD WHITE	0								0.0205	G
H		-5	25							0.0230	H
I		-10	24							0.0240	I
J	LILY WHITE	-15	23	0						0.0255	J
K	CREAM WHITE	-20	22	0.5	1					0.0275	K
L	EXTRA PALE	-25	21	1.0	1 1/2					0.0285	L
M	EXTRA LEMON PALE	-30	20	1.5	2					0.030	M
N	LEMON PALE		19	2.0	2 1/2					0.031	N
O	EXTRA ORANGE PALE		18	2.5	3					0.032	O
P	ORANGE PALE		17	3.0	3 1/2					0.033	P
Q	PALE		16	3.5	4					0.034	Q
R	LIGHT RED		15	4.0	4 1/2					0.035	R
S	DARK RED		14	4.5	5					0.036	S
T	CLARET RED		13	5.0	5 1/2					0.037	T
U			12	5.5	6					0.038	U
V			11	6.0	6 1/2					0.039	V
			10	6.5	7					0.040	
			9	7.0	7 1/2					0.041	
			8	7.5	8					0.042	
			7	8.0	8 1/2					0.043	
			6	8.5	9					0.044	
			5	9.0	9 1/2					0.045	
			4	9.5	10					0.046	
			3	10.0	10 1/2					0.047	
			2	10.5	11					0.048	
			1	11.0	11 1/2					0.049	
			0	11.5	12					0.050	
			-1	12.0	12 1/2					0.051	
			-2	12.5	13					0.052	
			-3	13.0	13 1/2					0.053	
			-4	13.5	14					0.054	
			-5	14.0	14 1/2					0.055	
			-6	14.5	15					0.056	
			-7	15.0	15 1/2					0.057	
			-8	15.5	16					0.058	
			-9	16.0	16 1/2					0.059	
			-10	16.5	17					0.060	
			-11	17.0	17 1/2					0.061	
			-12	17.5	18					0.062	
			-13	18.0	18 1/2					0.063	
			-14	18.5	19					0.064	
			-15	19.0	19 1/2					0.065	
			-16	19.5	20					0.066	
			-17	20.0	20 1/2					0.067	
			-18	20.5	21					0.068	
			-19	21.0	21 1/2					0.069	
			-20	21.5	22					0.070	
			-21	22.0	22 1/2					0.071	
			-22	22.5	23					0.072	
			-23	23.0	23 1/2					0.073	
			-24	23.5	24					0.074	
			-25	24.0	24 1/2					0.075	
			-26	24.5	25					0.076	
			-27	25.0	25 1/2					0.077	
			-28	25.5	26					0.078	
			-29	26.0	26 1/2					0.079	
			-30	26.5	27					0.080	
			-31	27.0	27 1/2					0.081	
			-32	27.5	28					0.082	
			-33	28.0	28 1/2					0.083	
			-34	28.5	29					0.084	
			-35	29.0	29 1/2					0.085	
			-36	29.5	30					0.086	
			-37	30.0	30 1/2					0.087	
			-38	30.5	31					0.088	
			-39	31.0	31 1/2					0.089	
			-40	31.5	32					0.090	
			-41	32.0	32 1/2					0.091	
			-42	32.5	33					0.092	
			-43	33.0	33 1/2					0.093	
			-44	33.5	34					0.094	
			-45	34.0	34 1/2					0.095	
			-46	34.5	35					0.096	
			-47	35.0	35 1/2					0.097	
			-48	35.5	36					0.098	
			-49	36.0	36 1/2					0.099	
			-50	36.5	37					0.100	
			-51	37.0	37 1/2					0.101	
			-52	37.5	38					0.102	
			-53	38.0	38 1/2					0.103	
			-54	38.5	39					0.104	
			-55	39.0	39 1/2					0.105	
			-56	39.5	40					0.106	
			-57	40.0	40 1/2					0.107	
			-58	40.5	41					0.108	
			-59	41.0	41 1/2					0.109	
			-60	41.5	42					0.110	
			-61	42.0	42 1/2					0.111	
			-62	42.5	43					0.112	
			-63	43.0	43 1/2					0.113	
			-64	43.5	44					0.114	
			-65	44.0	44 1/2					0.115	
			-66	44.5	45					0.116	
			-67	45.0	45 1/2					0.117	
			-68	45.5	46					0.118	
			-69	46.0	46 1/2					0.119	
			-70	46.5	47					0.120	
			-71	47.0	47 1/2					0.121	
			-72	47.5	48					0.122	
			-73	48.0	48 1/2					0.123	
			-74	48.5	49					0.124	
			-75	49.0	49 1/2					0.125	
			-76	49.5	50					0.126	
			-77	50.0	50 1/2					0.127	
			-78	50.5	51					0.128	
			-79	51.0	51 1/2					0.129	
			-80	51.5	52					0.130	
			-81	52.0	52 1/2					0.131	
			-82	52.5	53					0.132	
			-83	53.0	53 1/2					0.133	
			-84	53.5	54					0.134	
			-85	54.0	54 1/2					0.135	
			-86	54.5	55					0.136	
			-87	55.0	55 1/2					0.137	
			-88	55.5	56					0.138	
			-89	56.0	56 1/2					0.139	
			-90	56.5	57					0.140	
			-91	57.0	57 1/2					0.141	
			-92	57.5	58					0.142	
			-93	58.0	58 1/2					0.143	
			-94	58.5	59					0.144	
			-95	59.0	59 1/2					0.145	
			-96	59.5	60					0.146	
			-97	60.0	60 1/2					0.147	
			-98	60.5	61					0.148	
			-99	61.0	61 1/2					0.149	
			-100	61.5	62					0.150	

NOTES

- (1) NATIONAL PETROLEUM ASSOCIATION
- (2) AMERICAN SOCIETY FOR TESTING AND MATERIALS
- (3) AMERICAN PUBLIC HEALTH ASSOCIATION